



Research Article

TO STUDY THE EFFECT OF “VASAADI KASHAYA” IN THE MANAGEMENT OF KAMALA WITH SPECIAL REFERENCE TO HYPERBILIRUBINAEMIA**Shrikant W. Mude^{1*}, Mrunalini D. Gundre²**¹Assistant Professor, Department of Kayachikitsa, Bhausaheb Mulak Ayurved Mahavidyalaya Nandanvan, Nagpur, Maharashtra, India.²PG Scholar, Department of Kriya Sharir, Shri Ayurved Mahavidyalaya Nagpur, Maharashtra, India.**KEYWORDS:** *Vasadi Kashaya*, *Kamala*, Hyperbilirubinemia.**ABSTRACT**

The incidence of *Kamala* is very common due to life style, food habits and sanitation (water pollution and contaminated food) etc. as there is no conventional therapy available in modern sciences, so people are having affinity towards Ayurveda. This makes it necessary to work out in this issue, by providing safe effective and affordable treatment. Ayurveda provides cure of the disease on the basis of proper flow of *Pittadosha* in *Koshtha* in case of *Shakhashrit kamala*. *Pittashamak*, *Yakrut uttejak*, *Yakrut shodhana* to normal flow of bile from liver in case of *Bahupitta kamala*. Hyperbilirubinemia is a condition where there is yellow appearance of skin, sclera and mucous membrane resulting from an increase bilirubin concentration in the body fluids, mostly explained as jaundice which resemble the sign “*Haridratwakanakhannana*, *Haridra-Netra-mutra*” explained in the *Kamala* in *Charak chikitsa sthana* (16/35 and 126). The present study was planned to evaluate the effect of *Vasadi kashaya* on *Kamala* w. s. r. to Hyperbilirubinemia. Total 30 patients attending the OPD and IPD of R. A. Podar Ayurvedic Hospital Mumbai were randomly selected. After classical formulation *Vasadi Kashaya* was given for 3 weeks to these patients. Significant improvement was observed in the symptoms of *Kamala*.

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INTRODUCTION

Ayurveda is system of traditional medicine native to India and practiced in other parts of the world as a form of alternative medicine. In *Sanskrit* the word Ayurveda comprises “*Ayur*” means life and “*Veda*” means Science. Ayurveda is the science of life that deals not only with welfare and pleasure but also with hazards and sorrows of life. It emphasizes on preventive aspect as well as curative treatment. *Kamala* is one of the prominent conditions which attract attention of modern day. As it is seen frequently in various forms today irrespective of age, sex, socioeconomical condition, education etc, *Kamala* is mentioned in Ayurvedic texts mainly in *Brihat-trayi* as 16th chapter of *Charak samhita chikitsa sthana*, 44th chapter of *Sushrut Uttarsthana*, 13th chapter of *Nidansthana*, 16th chapter of *Ashtang Hridaya*, *Chikitsasthana*. In

all the above mentioned texts, the description of *Kamala* came along with *Pandu Roga*. [1-4]

Hyperbilirubinemia is a common liver disorder. It is found in all socioeconomically classes of the society. The liver disorders have remained a challenge to medical profession. Many of them ultimately lead to irreversible changes.[5][6][7][8] Hyperbilirubinemia is a condition where there is yellow appearance of skin, sclera and mucous membrane resulting from an increase bilirubin concentration in the body fluids, mostly explained as jaundice which resemble the sign “*Haridratwakanakhannana*, *Haridra-netra-mutra*” explained in the *Kamala* in *Charak Chikitsasthana*. (16/35 & 126)

Today there is a tremendous change in life style. This type of life style ultimately reflects upon the liver. Increased tendency to take open-air food, fast-food, cold drinks etc., give an excessive

load on the liver. Negligence about self-cleanliness, water pollution, and contaminated food are the main causative factors for viral infection. This leads to various liver disorders like viral hepatitis, amoebic hepatitis, liver cirrhosis etc. Out of which *Sankramak Kamala* (viral hepatitis) is facing problem showing the signs and symptoms of *Kamala*.

'*Kamala*' is a *Vyadhi* of *Raktavaha strotas* in which *Rakta* is vitiated by *Doshas* especially *Pitta*. As per this concept *Raktavaha Mulasthanas Dushti* i.e. *Yakrut dushti* takes place. This disturbs the *Swasthya* and develops different symptoms such as '*Nakh-Netra-Mutra-Twak Peetata*' although "*Anutsaha*" desire to do nothing. Despite of the fact, that most of the viral diseases are self-limiting in nature, number of patients of viral hepatitis has been observed to be shifting from sub-clinical infection to rapid progressive chronic liver disease with liver cirrhosis and even Hepatocellular carcinoma.

In fact, in spite of a spectacular advance in modern medicine numerous problems still remain, especially in the management of liver diseases. Till today there is no satisfactory medicine. All modern medicines are artificially prepared and chemical in nature. These drugs are metabolized and detoxified in the liver. Thus most of the drugs are considered as hepatotoxic. Naturally inadequacies available in medicines give view towards the Ayurveda. The results of Ayurvedic preparations on the liver diseases are very outstanding. In Ayurvedic literature many herbs and *Kalpas* are described for *Kamala*. There are many preparations available in Ayurveda.^[9,10]

While treating *kamala* main line of treatment is *Virechan*, to bring proper flow of *Pittadosha* in *Koshtha* in case of *Shakhashrit Kamala*, *Pittashamak*, *Yakrut uttejak*, *Yakrut shodhan* to normal flow of bile from liver in case of *Bahupitta Kamala*.

The selected drug was *Vasadi kashaya* from *Bhaishjya Ratnavali*. Its contents are 1) *Vasa Twak* 2) *Guduchi* 3) *Kutaki* 4) *Neem Twak* and 5) *Chirayta*.^[11]

Decoction with *Madhu* (Honey) follow the *Chikitsasutra siddhant* of *Kamala* through *Rasa*, *Virya*, *Vipaka* etc. As well as drugs are easily available and cost effective. Number of patients suffering from *Kamala* is quite high. The unbearable "*Haridra-Mutra-Netra-Twakata*" of *Kamala* have limited results of other drugs. Although special reference of *Bhaishjya Ratnavali* has explained *Vasadi Kashaya*.^[12]

As described in *Granthas* the conventional treatment of *Kamala* is to use pungent, sharp, hot, salty and sour substances to remove the obstruction of *Kapha* mainly in *Shakhashrit Kamala*. But the *Vasadi Kashaya* is mainly *Tikta* and *Katu Raspradhan Kalpa* and *Virechak dravya*, *Yakrutottejak*, *Yakrut Shodhan* having property which is also remove obstruction of *Kapha* without doing *Pittaprapakopa* and does *Rasayana Karma* also in both types of *Kamala*. So in spite of using conventional therapy we selected the *Kalpa*, which is working according to basic principle of *Chikitsa Siddhant*.^[13,14]

MATERIAL AND METHODS

A) Study: Prospective, open Randomized study.

B) Subject recruitment: Patient will be selected from OPD and IPD of College and Hospital.

C) Name of study center: O.P.D. and I.P.D. of *Kayachikitsa* Department.

Drug Name: *Vasaadi Kashaya*

Contents: 1) *Vasa Twak* 2) *Guduchi* 3) *Neem Twak* 4) *Chirayta* 5) *Kutki*, all in equal Parts.

Preparation of drug: Preparation of *Vasaadi Kashaya* as per scientific, authentic. Preparation method of *Vasaadi Kashaya* will be done according to *Sharangadhar Samhita*.

Method of preparation of Kwatha: One part of *Bharad Choorna* (all ingredients taken in same quantity) will be taken and 16 part of water will be added in it. Then the whole mixture will be boiled up to 1/8th of it remains. Then it will be filtered.

Dose: 30 ml Twice Daily

Anupan: *Madhu* 5 ml.

Time of administration: During meal of morning and night (*Saman kala*).

Diet: Specified diet, *Mugdala khichadi*, *Laghu aahaar* as per indicated *Shuka Varga*, *Peya*, *Vilepi* and *Jawar Roti*. *Shimbi Varga*, *Mudga yush* (green gram), *Kulatth yush* (horsegram), *Masur yush* (lentil) *Shak Varga -Patol*, *Shushka mulak* (radish), *Dugdh Varga-Takra*, *Phala Varga- Dadim* (pomegranate), *Manuka* (Dried black Grapes).

D) Follow up: Will be maintained weekly. Follow up for 21 days.

E) Inclusion Criteria

1. Age -12 to 60 yrs.
2. Sex- Male and Female
3. Patient with signs and symptom of *Kamala*.
4. Patient having serum bilirubin level above 1.3mg/dl.

F) Exclusion Criteria

1. Patient above 60 yrs and below 12 yrs age.
2. Pregnancy and Lactating mother.
3. Cases of liver abscess, liver cirrhosis, HBsAg positive and known case HIV Positive.
4. Patients having malignancy.
5. Patients in acute alcohol withdrawal state, intoxication Hepatic encephalopathy.
6. Serum bilirubin level more than 20mg/dl.
7. Psychotic patients.
8. Hyperbilirubinaemia due to congenital cause, Drug toxicity, AKT.
9. Surgical obstructive pathology.

G) Clinical Examination: Complete clinical examination from the point of view of *Kamala* will

Subjective assessment

1	Netra Peetata	
	Absent	0
	Mild	1
	Can be seen in Sunlight	2
	Can be seen without Sunlight also	3
2	Peeta Mutrata	
	Normal urine colour	0
	Yellowish coloured urine	1
	Dark yellow coloured urine	2
	High coloured urine	3
3	Yakrita Vrudhi	
	Absent	0
	1 finger	1
	2 finger	2
	3 finger ++	3
4	Jvara	
	Absent	0
	Temp.99-100 degree F	1
	Temp.100-102 degree F	2
	Temp. above 102 degree F	3
5	Chhardi (Vomiting)	
	No vomiting	0
	Less than 3 episodes	1
	3-6 episodes per day	2
	More than 6 episodes per day	3
6	Sadana (Anganam Anutsaha)	
	No weakness	0
	Weakness not disturbing daily routine work	1
	Weakness disturbing daily routine work	2
	Weakness required complete bed rest	3

be done to diagnose and assess the development of patient's disease condition.

H) Diagnostic Criteria

1. Person with classical symptoms of *Kamala*.
 2. Serum bilirubin level above 1.3mg/dl.
- I) Investigations: 1. Liver Function Test –SGPT (ALT), SGOT (AST), Serum bilirubin level before and after study.
2. Urine for – Bile salt and Bile pigment. Before and after study.
 3. Serum protein, Albumin, Alkaline Phosphate– at the start and end of study.
 4. USG Abdomen-if needed.
 5. Other investigations CBC, ESR, RFT, Lipid profile, BSL - Before and After study. HIV, VDRL, HBsAg.

7	Daha	
	Absent	0
	Daha tends Trishna (thirst)	1
	Daha tends Murcha (unconsciousness)	2
	Daha tends Pralapa (irrelevant talk)	3
8	Twaka Peetata	
	Absent	0
	Mild	1
	Can be seen in Sunlight	2
	Can be seen without Sunlight also	3
9	Avipaka	
	Normal stool (motions)	0
	Heaviness in the Abdomen	1
	Heaviness with sticky/ hard stool	2
	Heaviness with constipation more than 2 days	3
10	Udarshool	
	Absent	0
	Mild	1
	Moderate	2
	Severe	3
11	Aruchi (Anorexia)	
	Normal	0
	Less desire to eat	1
	Less desire to eat with nausea	2
	Less desire to eat with severe nausea	3

Observations and Results

Table 1: Showing effect of therapy on symptom score of 30 patients

	Characters	B.T.	A.T.	Difference	% of relief
1	Netra Peetata	49	9	40	81.63%
2	Peeta Mutrata	50	12	38	76%
3	Yakrit vruddhi	21	5	16	76.19%
4	Jwara	21	2	19	90.47%
5	Chhardi	29	3	26	89.65%
6	Sadan	34	6	28	82.35%
7	Daha	25	7	18	72%
8	Twaka Peetata	21	7	14	66.66%
9	Avipaka	48	13	35	72.91%
10	Udarshool	24	7	17	70.83%
11	Aruchi	41	18	23	56.09%
	Average score	33	8.09	24.90	75.88%

Table 2: Showing Wilcoxon match paired sign rank test on subjective parameters

S.No.	Symptoms		Mean	SD	SEd	W	N	P
1	Netrapeetata	BT	1.633	0.7649	0.1396	435	29	<0.0001
		AT	0.3000	0.4661	0.08510			
		Dif.	1.333	0.5467	0.09981			
2	Peetmutrata	BT	1.667	0.7581	0.1384	406	28	<0.0001
		AT	0.4000	0.5632	0.1028			

		Dif.	1.267	0.5833	0.1065			
3	<i>Yakrita Vruddhi</i>	BT	0.7000	0.7497	0.1369	120	15	<0.0001
		AT	0.1667	0.3790	0.06920			
		Dif	0.5333	0.5713	0.1043			
4	<i>Jwara</i>	BT	0.7000	0.6513	0.1189	171	18	<0.0001
		AT	0.0667	0.2537	0.04632			
		Dif	0.6333	0.5561	0.1015			
5	<i>Chhardi</i>	BT	0.9667	0.7184	0.1312	253	22	<0.0001
		AT	0.1000	0.3051	0.05571			
		Dif	0.8667	0.6288	0.1148			
6	<i>Sadan</i>	BT	1.133	0.6814	0.1244	325	25	<0.0001
		AT	0.2000	0.4068	0.07428			
		Dif	0.9333	0.5208	0.09509			
7	<i>Daha</i>	BT	0.8333	0.3790	0.06920	171	18	<0.0001
		AT	0.2333	0.4302	0.07854			
		Dif	0.6000	0.4983	0.09097			
8	<i>Twaka Peetata</i>	BT	0.7000	0.9879	0.1804	66	11	<0.0001
		AT	0.2333	0.5040	0.09202			
		Dif	0.4667	0.6814	0.1244			
9	<i>Avipaka</i>	BT	1.600	0.6747	0.1232	435	29	<0.0001
		AT	0.4333	0.6261	0.1143			
		Dif	1.167	0.4611	0.08419			
10	<i>Udarshool</i>	BT	0.8000	0.7611	0.1390	120	15	<0.0001
		AT	0.2333	0.4302	0.07854			
		Dif	0.5667	0.6261	0.1143			
11	<i>Aruchi</i>	BT	1.367	0.6149	0.1123	210	20	<0.0001
		AT	0.6000	0.5632	0.1028			
		Dif	0.7667	0.6261	0.1143			

Paired t-test on objective parameters

Table 3: Showing effects of therapy on primary objectives variables

Investigation	Mean± SD B.T.	Mean± SD A.T.	Diff. Of mean ± S.D.	Error of difference	t value	P Value
S.G.O.T.	313.40 ± 262.72	65.033 ± 32.180	248.37 ± 233.43	42.618	5.828	<0.0001
S.G.P.T.	341.40 ± 273.65	73.867 ± 32.800	267.53 ± 245.10	44.748	5.979	<0.0001
Sr. Bilirubin	4.343 ± 2.370	1.323 ± 0.7011	3.020 ± 1.949	0.3558	8.488	<0.0001
Urine Bile Salts	1.867 ± 0.7303	0.6000 ± 0.4983	1.267 ± 0.7849	0.1433	8.839	<0.0001
Urine Bile Pigment	1.767 ± 0.8584	0.7333 ± 0.5208	1.033 ± 0.8899	0.1625	6.360	<0.0001

Table 4: Showing effect of therapy on Hb and ESR

Investigation	Mean ± SD B.T.	Mean ± SD A.T.	Diff. Of mean ± S.D.	Std. Error of difference	t value	p value
Haemoglobin	11.267 ± 2.447	11.510 ± 2.362	-0.2433 ± 0.3036	0.05544	4.389	0.0001
ESR	12.100 ± 4.467	11.067 ± 3.965	1.033 ± 1.829	0.3339	3.095	0.0043

Table 5: showing effect of therapy on T. Cholesterol and Sr. Triglycerides

Investigation	Mean ± SD B.T.	Mean ± SD A.T.	Diff. Of mean ± S.D.	Std. Error of Difference	t value	P Value
Total Cholesterol	195.87 ± 20.848	197.62 ± 25.692	-1.753 ± 17.771	3.244	0.5404	0.5930
Serum Triglycerides	149.33 ± 32.355	145.43 ± 22.480	3.900 ± 19.869	3.628	1.075	0.2912

Assessment of Safety Variables

In this RFT is included it was done at the beginning and at the end of study. RFT values namely blood urea and BUN are within normal limits and difference observed is statistically insignificant but serum creatinine level reduced after the treatment so, it is statistically significant.

Table 6: showing effect of therapy on RFT

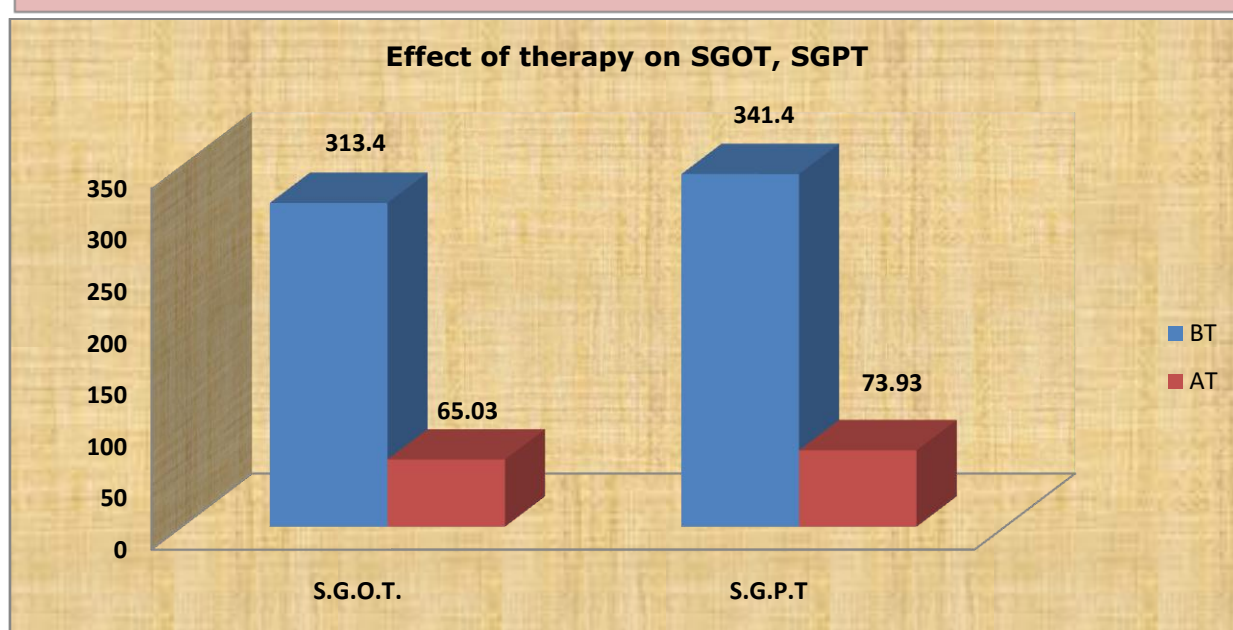
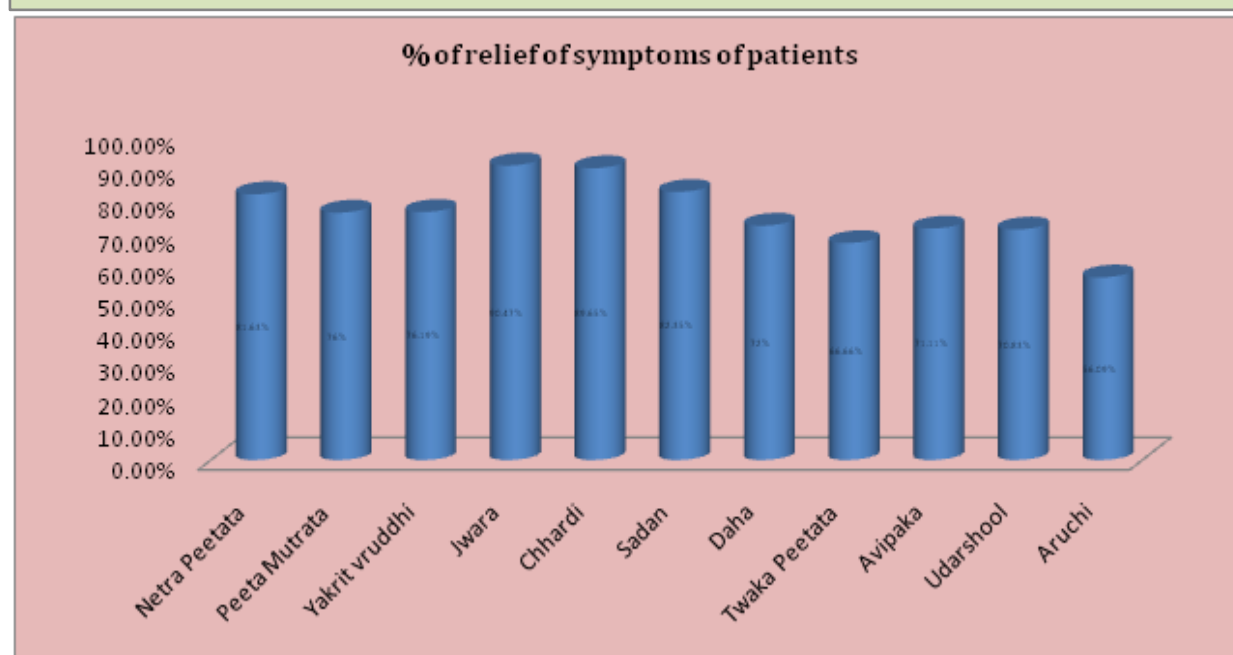
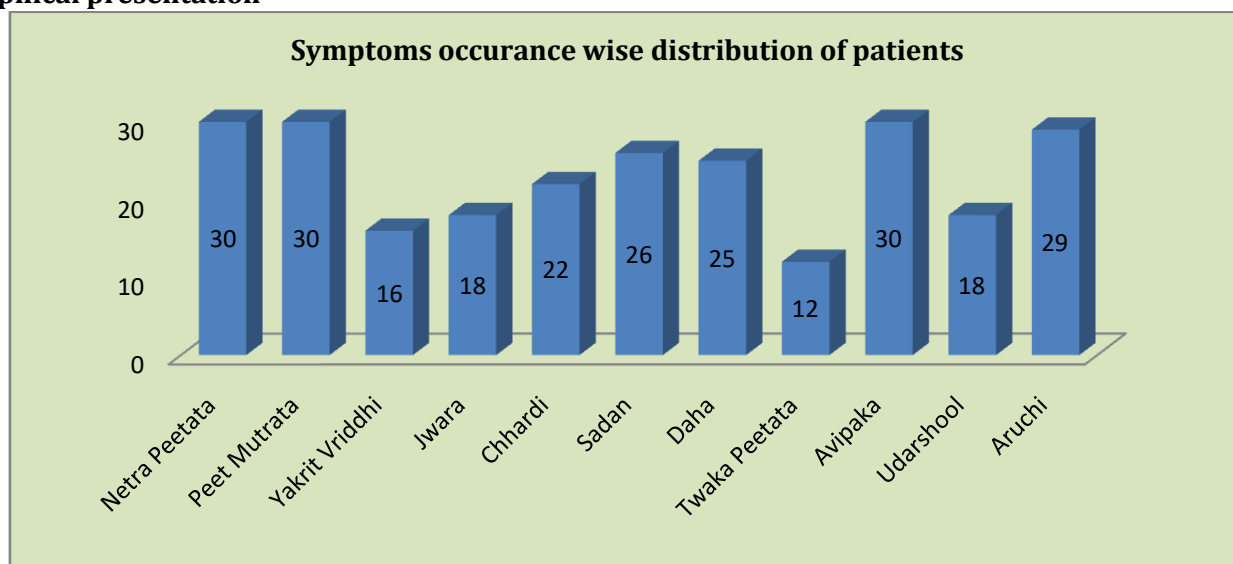
Investigation	Mean \pm SD B.T.	Mean \pm SD A.T.	Diff. Of Mean \pm S.D.	Std. Error of Difference	t value	p value
Blood Urea	33.370 \pm 5.916	33.188 \pm 5.211	0.1817 \pm 4.812	0.8785	0.2068	0.8376
BUN	13.347 \pm 3.036	12.793 \pm 2.782	0.5533 \pm 2.380	0.4346	1.273	0.2130
Serum Creatinine	0.9833 \pm 0.1967	0.9067 \pm 0.1741	0.07667 \pm 0.1695	0.03096	2.477	0.0193

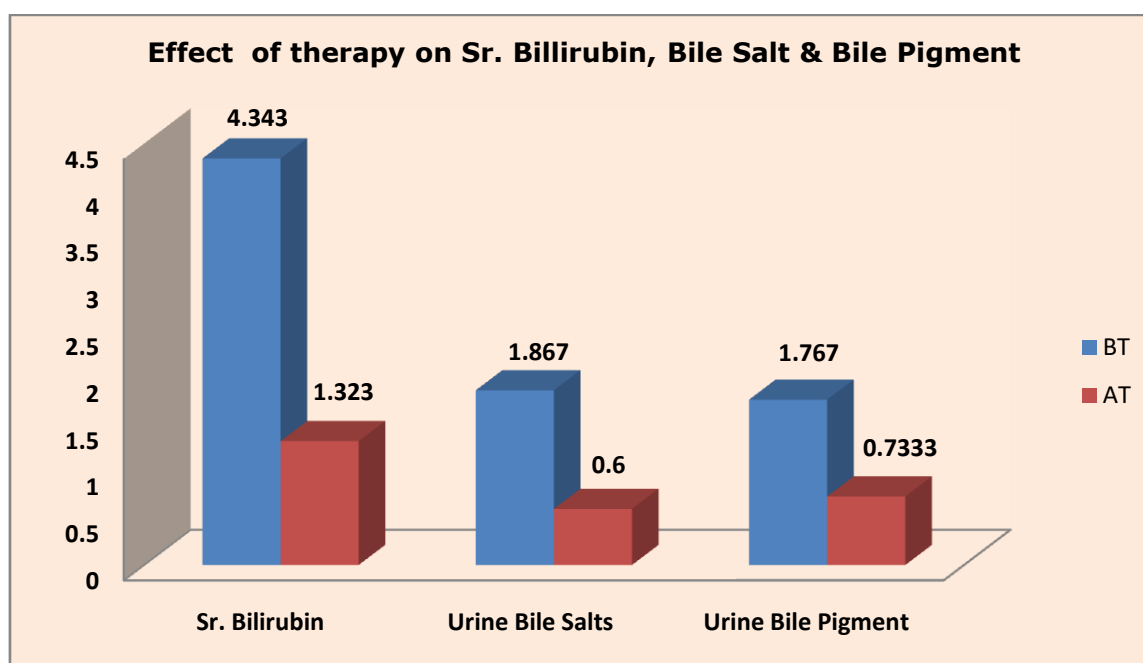
Table 7: Showing Total effect of therapy on patients, having 21days follows up according to subjective and objective assessment

Sr. No.	% of relief in signs and symptoms	% of relief in Bio laboratory test	Average %	Remark
1	80	86.46838407	83.234	Cured
2	66.66666667	61.8219798	64.244	Markedly Improved
3	82.60869565	82.45044352	82.53	Cured
4	100	68.6207162	84.31	Cured
5	62.5	77.08697593	69.793	Markedly Improved
6	46.15384615	84.04814886	65.101	Markedly Improved
7	86.66666667	78.0042396	82.335	Cured
8	85.71428571	42.43523974	64.075	Markedly Improved
9	75	72.32155792	73.661	Markedly Improved
10	71.42857143	72.1505667	71.79	Markedly Improved
11	83.33333333	56.09104658	69.712	Markedly Improved
12	80	46.80241327	63.401	Markedly Improved
13	85.71428571	31.72727273	58.721	Markedly Improved
14	80	80.17416268	80.087	Cured
15	81.81818182	55.8454783	68.832	Markedly Improved
16	56.52173913	74.35547095	65.439	Markedly Improved
17	88.23529412	78.31933195	83.277	Cured
18	85.71428571	83.51588265	84.615	Cured
19	47.36842105	42.93749373	45.153	Improved
20	86.66666667	71.10684942	78.887	Cured
21	72.72727273	56.3622194	64.545	Markedly Improved
22	90	61.1825837	75.591	Cured
23	83.33333333	65.69699877	74.515	Markedly Improved
24	87.5	76.88176963	82.191	Cured
25	88.88888889	63.54700034	76.218	Cured
26	80	50.50507239	65.253	Markedly Improved
27	68.42105263	75.12175065	71.771	Markedly Improved
28	87.5	46.4411796	66.971	Markedly Improved
29	85.71428571	34.33082707	60.023	Markedly Improved
30	88.88888889	66.60230198	77.746	Cured

As per statistical data from above observation table, the total effect of therapy on 30 patients, 12 cured, 17 markedly improved and 1 patient is improved.

Graphical presentation





DISCUSSION

The present study included 30 cases of *Kamala* in OPD and IPD of Hospital, were treated with *Vasadi Kashaya*. *Kamala* is a *Pittapradoshaj vikara* which lead to cause *Vidagdhata* of *Rakta* and *Mansa Dhatu* which leads to *Bahupitta Kamala*, so the treatment of *Kamala* is *Shodhan Chikitsa* i.e. *Virechan* also *Pittaghna* and *Pandu Virodhi Chikitsa* and *Shakhashrit Kamala* in which vitiated *Kapha* with the help of *Vata Dosha* make the obstruction to flow of *Pitta*. The line of treatment is mainly to remove obstruction by alleviating *Kapha Dosha* and then *Pitta Shodhan* by means of *Virechan* and in case of *Bahupitta Kamala* in which drugs act on liver as *Yakrutottejak* and *Yakrut Shodhan* which leads to normal flow of bile.

As the *Vasadi Kashaya* is having *Tikta Katu Rasa*, *Laghu Ruksha Guna* and *Vayu Aakash Mahabhuta Gunadhikya* which leads to *Samprapti-vighatan*.

While assessing the treatment response all routine investigations was done with liver function tests, SGOT, SGPT, Sr. bilirubin, Urine bile salts and bile pigments were carried out weekly. Sr. alkaline phosphatase. CBC, ESR and lipid profile were done at the start and at the end of the study. USG of abdomen and pelvis was done as per requirement.

No major or minor unwanted reactions of the drug were observed during the study.

- SGOT, SGPT, Sr. Bilirubin, urine bile salts and bile pigments has shown extremely significant results with p value <0.0001. (Table no. 3)

- Hemoglobin have also shown extremely significant results with p value 0.0001. (Table no. 4)
- ESR has shown very significant result with p value 0.0043. (Table no. 4)
- Total Cholesterol and Triglycerides level are within normal limits before and after the treatment there is no significant result with p value of cholesterol and triglycerides 0.5930 and 0.2912 respectively. (Table no. 5)
- About RFT there was no significant changes observed as they are within normal limits before and after study. But Serum creatinine level reduced after the treatment so, it is significant. (Table no. 6)

While assessing the treatment response subjectively patient had shown significant symptomatic relief. The relief of the symptoms from the disease is as follows.

Within 1-2 weeks: *Aruchi, Avipaka, Chhardi, Udarshoola, Daha, Sadan.*

Within 2-3 weeks: *Netrapeetata, Twakapitata, Peetamutrata, Jwara, Yakritvrudhi.*

The patient who are having symptoms grade score 3 are improved up to 1. The patient who are having symptoms grade score 1 to 2 are improved completely at the end of the study.

Total Effect of Therapy

As per the statistical data, out of 30 patients, 12 patients were cured, 17 patients were markedly improved while 1 patient was improved. This data

clearly indicates that *Vasadi Kashaya* has significant role in *Kamala* with *Madhu Anupan*.

CONCLUSION

There observed statistically significant relief in all symptoms after the administration of drug. It is observed that average percentage of relief with the *Vasadi Kashaya* in *Kamala* was 75.88% and neither symptom was worsening during the entire study. (Table no.7)

- SGOT, SGPT, Sr. bilirubin, Urine bile salts and bile pigments has shows extremely significant results. (Table no.3)
- Hemoglobin has also shown extremely significant results. (Table no. 4)
- In case of ESR, there are very significant results observed. (Table no. 4)
- Total cholesterol and triglycerides levels are within normal limits before and after the treatment so, there are no significant results. (Table no. 5)
- About RFT there was no significant changes observed as they are within normal limits before and after study. But serum creatinine shows significant results. (Table no. 6)

Thus it seems that the significant effect of these drugs is a sum of the total of the action of its ingredient. During study none of the patient LFT values increased neither the patient worsens clinically.

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